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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,213	12/20/2001	Richard Slobodnik	550-298	6125

7590 01/11/2005

NIXON & VANDERHYE P.C.  
8th Floor  
1100 North Glebe Road  
Arlington, VA 22201-4714

EXAMINER
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TABONE JR, JOHN J

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/022,213	Applicant(s) SLOBODNIK, RICHARD	
	Examiner John J. Tabone, Jr.	Art Unit 2133	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **FINAL DETAILED ACTION**

1. Claims 1-5, 7-12 and 14 have been examined. Claims 1, 4, 5, 8, 11 and 12 have been amended. Claims 3 and 6 have been canceled.

#### ***Specification***

2. The specification objection due to informalities of misspelling of customization on page 2, ¶ 2 of the Office Action dated 04/23/2004 has been overcome by the Applicant. The examiner withdraws the objection.

3. The abstract objection due to improper placement of "[Figure 5]" on page 2, ¶ 3 of the Office Action dated 04/23/2004 has been overcome by the Applicant. The examiner withdraws the objection.

#### ***Claim Objections***

4. The objection to claim 6 on page 2, ¶s 4 and 5 of the Office Action dated 04/23/2004 has been overcome by the Applicant by canceling the claim. The examiner withdraws the objection.

#### ***Claim Rejections - 35 USC § 112***

Claims 4, 8 and 11-13:

These claim rejections under 35 USC § 112, second paragraph on page 2, ¶ 6 of the Office Action dated 04/23/2004 have been overcome by the Applicant. The Examiner withdraws the rejection.

Claims 5 and 12:

The Examiner agrees with the Applicant's arguments concerning the rejection under 35 USC § 112, second paragraph on page 2, ¶ 6 of the Office Action dated 04/23/2004, therefore, the Examiner withdraws the rejection.

Claims 7 and 14:

The rejection to these claims under 35 USC § 112, second paragraph on page 2, ¶ 6 of the Office Action dated 04/23/2004 is maintained by the Examiner for reasons outlined "Response to Arguments".

***Response to Arguments***

5. Applicant's arguments filed July 23, 2004 have been fully considered but they are not persuasive.

The Applicant disagrees with the rejection of claims 7 and 14 under 35 USC § 112, second paragraph on page 2, ¶ 6 of the Office Action dated 04/23/2004 as to not appearing to further limit the independent claims 1 and 8, respectively. The amended independent claims 1 and 8 recite the limitation "at least one memory" implies to the Examiner that there can be "one memory or more" (a plurality). In addition, independent claims 1 and 8 recite the limitation "a mapping circuit...for use by said at least one memory". In other words, a mapping circuit is used for each at least one memory ("one

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memory or more" or a plurality of memories). Based on this interpretation of the claim the Examiner can not come to any other conclusion that claims 7 and 14 do not further limit the independent claims 1 and 8, respectively and, therefore, the Examiner maintains the rejection.

The Applicant argues with respect to claims 1 and 8 that "Although the Examiner refers to page 2, paragraph 16 of Gold, this paragraph discloses only that Gold's embedded testing memory method "is attractive for use in microprocessors." Gold neither discloses nor suggests that a processor core is a fabricated on the same integrated circuit as the components illustrated in Figure 2 of Gold". The Examiner disagrees with the Applicant arguments and asserts that Gold substantially teaches the use of a microprocessor for executing BIST on Page 2, ¶ 16, "the microprocessor (processor core) performs BIST on a memory array (memory) having a physical address map distinct from its logical address map". It stands to reason that since the microprocessor performs BIST on a memory array it would be on the same integrated circuit. Also, Gold teaches the integration on Page 1, ¶ 10. Also, the Examiner does not see the components illustrated in Figure 2, however Figure 1 discloses these components.

The Applicant argues "Gold's teachings would not have motivated a person of ordinary skill in the art to adapt Gold's BIST circuit to incorporate a processor core on the same integrated circuit". The Examiner disagrees. See responsive in previous paragraph and rejection of claims 1 and 8 below.

In response to Applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a more generic, self-test controller to be used with a wide variety of different memory structures) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is the Examiner's conclusion that claims 1 and 8 as amended are not patentably distinct or non-obvious over the prior art of record namely, Gold (US-2003/0167428). Therefore, the rejection is maintained. **THIS ACTION IS MADE FINAL.**

6. The Applicant is notified that further claim objections and 35 USC § 112, second paragraph rejections have been made and should be addressed in future correspondence. Also, the previous Office Action dated 04/23/2004 has been appended for the convenience to the Applicant.

#### ***Claim Objections***

7. Claim 1 is objected to because of the following informalities: Claim 1 is marked as (Original) in error. This should be corrected as (Currently Amend) or (Previously Presented), whichever pertains to future correspondence. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 7 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7 and 14:

These claims are not clear and do not appear to further limit claims 1 and 8, respectively.

These claims recite the limitation "said memories" in line 2. There is insufficient antecedent basis for this limitation in the claim. The limitation should read "said plurality of memories".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 3, 4, 8, 10, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Gold (US-2003/0167428).

Claims 1 and 8:

Gold teaches electronic device 10 includes a BIST engine 20 (self-test controller) that generates a test vector for a physical memory row address of the embedded memory 28 (memory). Gold also teaches a memory address converter 24 Mapping circuit) that converts the physical address generated by the BIST engine 20 to a corresponding logical address in the embedded memory 28. (Page 2, ¶ 17). Gold further teaches an integrated circuit that contains a memory array (memory) and a test generator (controller) coupled to the memory array to generate a physical address of the memory array and a corresponding test vector. (Page 1, ¶ 10). Gold further discloses the microprocessor (processor core) performs BIST on a memory array (memory) having a physical address map distinct from its logical address map. (Page 2, ¶ 16).

Claims 3 and 10:

Gold teaches the BIST engine 20 (controller) generates the physical memory address 34 (first physical address) and the adjacent physical memory address 36 (second physical address). The BIST engine 20 passes the physical memory address 34 and the physical memory address 36 to the address converter 24 (mapper). The address converter 24 (mapper) maps the physical memory address 34 (first physical address) to the corresponding logical memory address 40 (first logical address), and maps the physical memory address 36 (second physical address) to the corresponding logical memory address 42 (second logical address). The test vectors generated by the BIST engine 20 are then written to the logical memory addresses of the embedded memory array 28. (Page 2, ¶ 23).

Claims 4 and 11:

Gold teaches electronic device 10 includes a BIST engine 20 (self-test controller) that generates a test vector for a physical memory row address of the embedded memory 28 (synthesized memory).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5, 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gold (US-2003/0167428).

Claims 5:

Gold does not explicitly teach "said mapping circuit is part of an interface circuit", however, Gold does suggest the address converter 24 (mapping circuit ) may be adapted to support built-in self-repair of the embedded memory array 28 (at least one memory). (Page 2, ¶ 21). It would have been obvious to one of ordinary skill in the art at the time the invention was made that Gold's address converter 24 (mapping circuit), in being adapted to support built-in self-repair of the embedded memory array 28 would contain the necessary circuitry to synchronize the timing of the signals connected to the memory array 28. The artisan would be motivated to believe so because built-in self-repair circuits inherently adapt the repair circuit to the memory timing it is repairing

through synchronization of the signals interfacing to the memory array. In this way the interface circuit of the instant application would already be included in Gold's address converter 24 (mapping circuit).

Claims 7 and 14:

Gold does not explicitly teach "a plurality of memories, a mapping circuit being provided for each of said memories", however, Gold does teach the memory address converter 24 (mapping circuit) converts the physical address generated by the BIST engine 20 (controller) to a corresponding logical address in the embedded memory 28 (memory). (Page 2, ¶ 17). Gold also suggests that the electronic device 10 can include more than one data bus. (Page 2, ¶ 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made that Gold's electronic device 10 can be modified to comprise of a plurality of memories and memory address converter circuits. The artisan would be motivated to do so to enable the mapping of the physical address to the logical address of multiple memories.

11. Claims 2, 9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gold (US-2003/0167428) and further in view of Patti (US-6469945).

Claims 2 and 9:

Gold does not explicitly teach the physical address signals include row and column address signals, however, Gold does teach a BIST engine 20 (self-test controller) that generates a test vector for a physical memory row address of the embedded memory 28 (memory). (Page 2, ¶ 17). Gold also teaches the address

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converter 24 (mapping circuit) may be adapted to support built-in self-repair of the embedded memory array 28. (Page 2, ¶ 21). In addition, Gold suggests the address converter 24 (mapping circuit) can be any conventional type of solid state memory device, such as a read only memory (ROM), a random access memory (RAM), an electronically erasable programmable read only memory (EEPROM), or the like. (Page 2, ¶ 17). Patti teaches that controller 40 loads physical row and column addresses into row/column address CAM 43 and 42. Patti teaches controller 40 alters the mapping in CAM 43 and 42 when a bad row or column is found such that the bad row or column is replaced by one of the spares. (See col. 4, lines 4-8). Patti's suggests the mapping circuit utilizes a CAM to map the physical address within the memory chip, i.e., rows and columns in the storage array, to the logical addresses, however, the mapping circuit can include some form of non-volatile memory such as EEPROM or FLASH in which the mapping is stored when power is turned off. (See col. 9. lines, 9-18). As previously stated, Gold also teaches the mapping circuit can include an EEPROM or FLASH. (Page 2, ¶ 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made that Gold's BIST engine 20 could be modified with Patti's controller to generate physical column address as well as physical row addresses. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gold's address converter 24 (mapping circuit) to include a column ROM or EEPROM or FLASH memory as in Patti's mapping circuit. The artisan would be motivated to do so because it would enable Gold to test or replace the memory array 28 columns as well as the rows.

Claim 12:

Gold does not explicitly teach "said mapping circuit is part of an interface circuit", however, Gold does suggest the address converter 24 (mapping circuit ) may be adapted to support built-in self-repair of the embedded memory array 28 (at least one memory). (Page 2, ¶ 21). It would have been obvious to one of ordinary skill in the art at the time the invention was made that Gold's address converter 24 (mapping circuit), in being adapted to support built-in self-repair of the embedded memory array 28 would contain the necessary circuitry to synchronize the timing of the signals connected to the memory array 28. The artisan would be motivated to believe so because built-in self-repair circuits inherently adapt the repair circuit to the memory timing it is repairing through synchronization of the signals interfacing to the memory array. In this way the interface circuit of the instant application would already be included in Gold's address converter 24 (mapping circuit).

***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

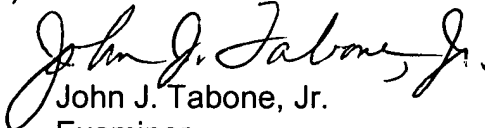
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (571) 272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John J. Tabone, Jr.  
Examiner  
Art Unit 2133

  
ALBERT DECADY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100